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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/577,032	05/23/2000	Kunihiro Tashiro	1324.64102	3410

7590

03/12/2003

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EXAMINER

DUONG, THOI V

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/577,032

Applicant(s)

TASHIRO ET AL.

Examiner

Thoi V Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-9 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-9 and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the Amendment, Paper No. 10, filed December 09, 2002.

Accordingly, claims 1, 4, 5, 9, 17, 19 and 20 were amended, and claim 3 was cancelled. Currently, claims 1, 4-9, and 17-20 are pending in this application.

Drawings

2. Figure 9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Response to Arguments

3. With respect to claims 1 and 2, Applicant argued that Nagayama does not disclose or suggest a blue-colored layer formed at an area of a shading film, wherein the blue-colored layer contacts the sealing material as recited in claim 1. The Examiner disagrees with the Applicant's remarks because it is clearly shown in Fig. 5 of Nagayawa that a blue colored layer 25B is formed at an area of a shading film 16, wherein the blue-colored layer contacts the sealing material 4.

Applicant's arguments with respect to claims 5-9, and 17-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2871

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 5, 6, 17 and 18 are rejected under 35 U.S.C. 102(a) as being anticipated by Kohama et al. (USPN 5,946,070).

With respect to claims 5 and 6, as shown in Fig. 2, Kohama discloses a liquid crystal display comprising:

two substrates 10, 20 sandwiching liquid crystal 50 and opposing to each other;

a main seal 30 attaching the two substrates at an external peripheral portion of a display area R1 of the substrates;

a frame-shape structure 45 formed in the area between the main seal and the display area;

a black matrix picture-frame 12 shading an area between the main seal and the display area; and

a perpendicular alignment film 21 on the substrate 20,

wherein an external peripheral end of the frame-shape structure and an external peripheral end of the black matrix picture-frame are formed to coincide with each other (at the inner side of the main seal) viewing from a perpendicular direction to the substrates; and

wherein the frame-shape structure has a height half of that of a spacer 40 in the display area.

With respect to claims 17 and 18, as shown in Figs. 1 and 2, Kohama discloses a liquid crystal display comprising:

Art Unit: 2871

two substrates 10, 20 attached opposing each other;
a sealing material 30 formed outside a display area R1 having a plurality of pixels for sealing liquid crystal between two substrates; and
a plurality of structures 43 formed inside the display area for controlling spreading of dropping liquid crystal (col. 3, lines 6-13 and col. 5, lines 20-26),
wherein the plurality of the structures are distributed on the substrate at a predetermined arrangement density or a predetermined arrangement shape.

6. Claim 19 is rejected under 35 U.S.C. 102(a) as being anticipated by Fujioka et al. (USPN 6,124,917).

As shown in Figs. 1 and 2, Fujioka discloses a liquid crystal display comprising:
two substrates 101, 102 attached opposing each other;
a sealing material 103 formed outside a display area having a plurality of pixels for sealing liquid crystal between the two substrates; and
a concave shape structure 109 provided in a frame shape between the sealing material and the display area, on the substrate 101 (col. 11, lines 40-64).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2871

8. Claims 1 and 2 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nagayama et al. (USPN 6,384,882 B1) in view of Shuichi (JP 11-015007) for the same reasons set forth in the last office action.

9. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohama et al. (USPN 5,946,070) in view of Takuya (JP 11-119230) and Sakai et al. (USPN 6,222,603 B1).

Kohama discloses a liquid crystal display that is basically the same as that recited in claims 6-8 except for a second frame-shape structure formed in an external area of the main seal. As shown in Figs. 1 and 6, Takuya discloses a LCD comprising a main seal 61, and a black matrix picture-frame 62 formed on the gap holding pillar, wherein the black matrix is not formed on the seal formation area, and a gap holding pillar 43b formed in an external area from the main seal to uniformly hold the gap of an LC cell (see Abstract). Meanwhile, Sakai also discloses a liquid crystal comprising a main seal 6 and a frame-shape structure 11 for forming a more uniform gap of an LC cell as shown in Fig. 4 (col. 5, lines 26-35). Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the LCD of Applicant's Prior Art with the teachings of Takura and Sakai by forming a second frame-shape structure in an external area from the main seal on the black matrix picture-frame for improving the uniformity of a display cell gap.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kijima et al. (USPN 6,259,500 B1) in view of Shuichi (JP11-015007).

Art Unit: 2871

As shown in Fig. 8B, Kijima discloses a LCD comprising a sealing material 36 sandwiched between two substrates 11 comprising a light-reflection layer 19 having a concave-convex structure which has inclined surfaces and formed in an area contacting with the sealing materials of the first substrate 11 (col. 4, lines 7-10). Kijima discloses a LCD that is basically the same as that recited in claim 9 except for a photo-curing type sealing material. Schuichi discloses a LCD comprising a sealing material irradiated with light having 380 nm wavelength or longer for bonding panel substrates (see Abstract). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the LCD of Kijima with the teaching of Schuichi by employing a photo-curing type sealing material to seal the display with an inexpensive method.

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (Fig. 9) in view of Hasegawa et al. (JP 09-090383).

As shown in Fig. 9, Applicant's Prior Art discloses a conventional transfer 231 formed in a BM picture-frame portion 108 adjacent to the sealing material 6 and electrically connected to both of substrates via a transfer pad 232 (Specification page 44, lines 22-30). Applicant's Prior Art discloses a conventional transfer that is basically the same as that recited in claim 4 except for a light incident hole opened at the shading film above the transfer. As shown in Figs. 5 and 8, Hasegawa discloses a liquid crystal display comprising a light transmitting part (hole filled with transparent material) 53 formed at the shading film 43b in the application of a UV-curing sealing material 57 to surely harden the sealing material in a short time and (see Abstract). Thus, it would

Art Unit: 2871

have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Applicant's Prior Art with the teaching of Hasegawa by forming a light incident hole opened at the shading film above the transfer so as to surely harden the UV-curing sealing material and prevent liquid crystal from being polluted by non-hardened sealing material.

12. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoshikawa et al. (USPN 4,640,583) in view of Sakai et al. (USPN 6,222,603 B1).

As shown in Fig. 9A, Hoshikawa discloses a liquid crystal display comprising an inner sealing material 14, a middle sealing material 13, and an outer sealing material 14 for sealing liquid crystal 12 between two substrates 10 and 11 (see Fig. 8 and col. 9, lines 43-55). Hoshikawa discloses a liquid crystal display that is basically the same as that recited in claim 20 except for a hollow frame-shape sealing material functioning as a suction in an atmosphere. As shown in Fig. 4, Sakai discloses a liquid crystal display comprising a seal pattern 6 and a dummy seal pattern 11 formed at an external periphery of the sealing pattern for functioning as a suction in an atmosphere and forming more uniform gap for the display cell (col. 5, lines 26-39). Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal display of Hoshikawa with the teaching of Sakai by forming a hollow (or a space) between the middle sealing material 13 and the outer sealing material 14 to create a suction in an atmosphere and improve the uniformity of the cell gap.

Art Unit: 2871

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

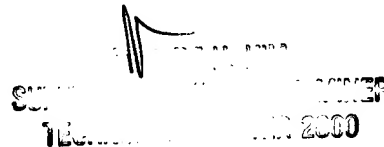
14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (703) 308-3171. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (703) 305-3492.

Thoi Duong



03/09/2003



STAMP: 10/10/2000